

Norway's experience with asbestos, some points of importance

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Abstract

Norway did not recognize the carcinogenic potential of asbestos till the beginning of the 1970ies and even if the use of asbestos faded out in the later part of the 1970ies, it was not till 1984 that Norway legally prohibited the use of asbestos. The exposure limits were gradually reduced and was set for all types of asbestos at 0,1 fiber/cm³ in 1989. Norway still has exposure from asbestos in buildings, but yet no clear requirement for building owners to identify which building structures contain asbestos. We do, however, have experience in how asbestos identification in buildings can be organized and carried out. There are too few defined cohorts of asbestos exposed workers. As workers change their jobs, many asbestos cancer victims will be identified in other jobs than the one where they were exposed to asbestos. Therefore Norway has established a national system in order to identify all occupational cancers with the right to compensation. This system works reasonably well, but should be improved to better catch workers with aggressive cancers like mesothelioma and bronchial cancer.

Key words: asbestos, asbestos in buildings, asbestos diseases, compensation.

1. Introduction. The Norwegian national context

Nothing happens by itself “out of the blue”. There is always a “history” behind what happens, shaped by the circumstances, the context, under which the events take place. Thus in order to see what happened in the history of asbestos in Norway, and why it could happen, one has to have some insight into the social context of Norway.

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Central in the Norwegian social context are the social partners in working life. The Norwegian Central Labour Union was established in 1899 and the Employers' Confederation in 1900. The first agreement between employers and employees within an industrial trade came in 1907. But it then lasted, during some struggling years, till 1935 before the two parties entered their "General Agreement". This agreement established the will and duty of the parties to 1) cooperate in the several fields of working life in the enterprises and 2) it regulates how conflicts (especially concerning wages) should be negotiated and handled. Importantly the government (with some exceptions) should keep out of the wage negotiations but takes the role of facilitator if needed and it might intervene if conflicts threaten core functions in society. This is a central part of the Nordic Social Welfare Model which gives us rules for handling workplace conflicts, and thus predictability and stability in working life. This is seen as a great advantage by both employers and employees.

It also gives the Norwegian Labour Unions appropriate strength in the Norwegian society in balance with the other social partners, especially the Employers' Confederation and the State (they operate, more often than not, in a three-partied cooperation).

2. History of Norway's use of asbestos and the growing awareness of asbestos diseases

Norway, like the rest of the industrialised world, hailed asbestos from the beginning as the fantastic technical material that it truly is.

Most of the asbestos was used 1) in machinery to facilitate industrial production, 2) as isolation on larger scales, 3) in building materials especially asbestos-cement.

We were also aware, back in the 1930ies, of asbestos' potency for giving asbestosis, the fibrotic lung disease, and we took different preventive actions to protect employees against this. However, in hindsight, these preventive actions were, by no means, good enough.

What is less known is that a Norwegian physician in 1940 had gathered evidence indicating that asbestos also gave lung cancer (1,2). However, this information could not be published internationally at that time, and was forgotten after 1945 together with identical information discovered by German physicians.

Thus the world carried on with asbestos till English speaking physicians in the late 1950ies and in the 1960ies established the world knowledge that asbestos

was a carcinogenic material.

Norway was somewhat slow to acknowledge the new information on asbestos and cancer, but gradually from around 1970 and onwards there was an awakening concern that asbestos was a more than problematic material. We had a killer at our hands.

The trade unions with workers exposed to asbestos, like the Isolators Union, became very active and the unrest cumulated in an action by the Norwegian Building Workers Union in 1978 when they decided that no building worker would handle any asbestos-containing material any more. That decision quickly brought the Norwegian asbestos-cement factory to a halt in 1981.

2-1. The history of Norwegian Eternit Factory

The history of this asbestos-cement producer is central in the history of Norway's experience with asbestos. Founded in 1943, during the war, it started production with Finnish asbestos. From 1945 the factory could obtain fabricated asbestos materials from England that were torn apart again to regain the asbestos fibers. This way of production lasted for a few years before there again was access to raw asbestos from the world market, mostly chrysotile from Russia and Canada. However, the production also demanded amphibols which generally made up to around 7 % of the around 15 weight % of asbestos in the asbestos-cement products. The top year was 1972 with around 6200 tons of asbestos imported to the factory. From the start in 1943 the production line was, more or less, the common one where asbestos was crushed, handled (shoveled) and moved in the production line without any covering, giving huge asbestos exposure to the workers. Later the production line was slowly modified giving less asbestos fiber in the working air.

The factory was from the beginning aware of the potential for asbestosis. It quickly established an occupational health service, and picked out the 25 seemingly most asbestos exposed workers to undergo yearly lung X-ray for surveillance. This went on for 20 years before the radiologist suggested in the beginning of the 1970ies that the surveillance should be terminated as he had not yet discovered any pathological lung reaction. Obviously the knowledge of the latency-period was lacking. Looking at this group of 25 workers in the beginning of the 1980ies, three had died from mesothelioma, five were dead from "unknown reasons", three had asbestosis, ten pleural plaques, only four still had normal lung x-ray.

Contrary to the knowledge of asbestosis, the factory turned a “blind eye” to the gathering information from around 1960 that asbestos was a carcinogen. The attitude “we have not seen any cancers among our workers” continued till 1977 when the results of the first cancer epidemiological study was published and, as anticipated, disclosed increased amounts of cancer among the workers. The follow up in 2002 confirmed the excess number of cancers (3). The factory tried to find fibers which could replace asbestos, but was not able to do so and closed down in 1981.

With the results from the cancer study in 1977, it became clear to the Central Trade Union of Workers in the Chemical Industry that we would, in the coming years, see a growing number of new cases of cancer among the workers from the Eternit factory. The question on how these new cases could be compensated when the Eternit factory closed and the Norwegian Eternit company was dissolved became an issue of ensuing debate. The Trade Union deemed the compensation a worker with cancer could get from Social Security (National Insurance Administration) to be insufficient. The Trade Union, as a principle, wanted additional compensation from the factory. Luckily for the workers Norwegian Eternit was a part of a larger company Norwegian Cement with which the Trade Union could negotiate. However, the case ended in Court, but was eventually settled out of Court in 1983 securing the employees of Norwegian Eternit 1) the right to compensation if they in the future came down with asbestos diseases, 2) the creation of a medical service to follow up the employees. All paid by Norwegian Cement. This settlement also became the basis for the later legislation on “occupational injury insurance scheme” (see later).

The medical service is run jointly by the Trade Union and Norwegian Cement. Two health professionals and a representative of the workers are employed. The local workers’ representative is essential to the function of the service keeping running good contact with the remaining old workers. The medical staff secures the quality of the follow up health controls and (most important) represents a diseased worker’s interests towards the Social Security and Norwegian Cement to secure the worker’s compensations (see later).

A few cases of asbestos diseases are known among family members of the workers. There is no knowledge, but also no study, of asbestos diseases in the general population in the vicinity of the factory.

2-2. Asbestos in place. A problem of today

Norway prohibited the use of asbestos and asbestos-containing products (with a few exceptions of little importance) with the asbestos regulation of 1984.

Unfortunately it seems that the legislators thought that by this legislation alone the "asbestos problem" in Norway had been solved. They had indeed forgotten the ongoing exposure from "asbestos in place" in buildings and equipment. Thus, Norway continues at present to have an unknown number of asbestos exposed workers, and we will have an unknown number of asbestos diseases from this exposure in the future. So far, Norway has not taken this seriously. It is one of the "forgotten" problems and, contrary to England (4), we have no regulation on the duty to identify and mark asbestos in buildings. Thus the Norwegian Labour Inspection constantly runs into the situation that we find that workers in the building trade and demolition are exposed to asbestos containing materials. This in spite of the asbestos regulation which states that only companies with trained workers and with permission from the Labour Inspection are allowed to handle asbestos-containing materials. There are strong indications already that different professionals in the building industry (especially plumbers) do have the highest incidence of mesothelioma (5). Information from the Norwegian Cancer Registry confirms this finding (see later).

Norway's only experience with registration of "asbestos in place" is the following. Oslo City Council decided in 1988 to start a program for identifying and removing asbestos in the municipal buildings. The program was given 10 mill Norwegian kroner (ca. 178 mill yen) yearly to cover the 4,6 million m² of buildings. Since no similar program had ever been done before in Norway the program leader Mr. Tessli naturally started by asking around, but found next to no information except some in Gothenburg, Sweden. All together Mr. Tessli felt he nearly had to start from scratch.

Mr. Tessli quickly saw that he needed expertise on his side. He therefore recruited persons from the University of Oslo, medical personnel from the occupational health service, and an inspector from the local Labour Inspections in Oslo and others into a Advisory Group for the program. This Advisory Group agreed to work actively putting knowledge and time into the program. This professional support proved crucial in the first years when specific knowledge and experiences contributed significantly. The Advisory Group, coming from outside the municipal organisation, also carried credibility with them, when information on the dangers from asbestos were given to the inhabitants of buildings where asbestos had been identified and was to be removed. It is easy to become unduly worried when it comes to asbestos containing materials.

At the same time Mr. Tessli hired a few knowledgeable personnel to form a small staff in the program, and recruited additional around 20 persons to do the

actual inspections in the municipal buildings. This, unfortunately, turned out to be partial a failure. Even with education, a too large amount of these persons did not perform well enough in identifying asbestos in the buildings. Many inspections had to be done over again. Later inspections were done by a much smaller group of inspectors (3 to 6 varying over the years, engineers, persons from the building trade, ventilation experts) selected because of their competence in asbestos work. Asbestos identification is a task for the specialist.

But where to look? Which building materials could contain asbestos? Thus a big detective work started, from tracing down old producers and importers and asking them about asbestos containing products, to taking sample after sample of different building materials to have it analysed. One really has to have detective-minded personnel on such a task. From all these analyses there emerged a databank identifying more than 3000 building materials and parts of buildings containing asbestos. One really has to take many samples. The first years asbestos were found in around 50 % of the samples in the later years this increased to 60-70 %. If one does get a higher positive percentage this most likely indicates that too few samples are being taken and materials with asbestos will be overlooked. There must also be a proficient laboratory which analyses the samples and with enough capacity to give an answer within 24 hours.

The strategy to use when looking is selecting the most important things first.

1. Buildings

Public buildings first, schools, kindergartens, public sports facilities-and so on.

Age of the building, was it built or had it undergone repair in the period when asbestos containing building materials were used?

2. Status of the asbestos containing material

- a. Were asbestos fibers exposed to the surroundings, as in "fluffy" asbestos materials
- b. Materials with a possibility to shred asbestos fibers to the air
- c. Materials with asbestos fibers bound firmly (asbestos-cement, floor materials, painted materials).

Thus the first year survey strategy became to cover all public buildings, in prioritised order, looking for asbestos materials exposed to the surroundings and starting to have this asbestos removed.

Which asbestos containing material should be removed? a) Naturally all asbestos material where the asbestos fibers were exposed to the air. b) Materials

with a possibility to shred asbestos fibers to the air must be evaluated closely for whether to be removed or to have the surface covered (paint) and left in place for the time being. c) Materials with firmly bound asbestos fibers could be covered and left in place for the time being.

Who should remove the asbestos? Rather quickly Mr. Tessli became aware that some of the local administrators of municipal buildings had started on their own to have asbestos removed by incompetent firms (contrary to the asbestos regulation). This was stopped as soon as possible on order of the Mayor of Oslo.

Then all asbestos removal jobs were advertised using tenders. In the first years not all firms proved competent in doing the job. Removals had to be redone. However, by setting strict standards in the contract, "the air at the removal site shall not contain more than 0,01 asbestos fibers/cm³, counted with phase contrast microscopy (the international standard technique), when the removal is finished", the program was able to quickly sort out the not competent firms and to educate the rest to become very competent.

How should asbestos containing materials which were left in place be marked? This proved to be difficult and may be the very point which made the program not as useful as it should have been in the longer perspective. In public spaces it is most likely not a good idea to mark non-dangerous asbestos containing materials which are going to stand there, with an asbestos danger label. That will most likely scare persons unduly. Second, how long will such marking on place sticks before it comes off. Ideally asbestos in place should be marked on the building's drawings, which then should be kept in a central official register. Norway is now building up such registers, but 15-20 years ago when the program should like to register asbestos in place on the building's drawings, they found that no proper drawings existed for many of the buildings. Thus they had to mark on place in the buildings as good as they could and rely on their own notes from the inspections where the asbestos containing materials were located. This set up of information gathered will surely be lost over time, and much of the work will have to be redone in new rounds of inspections.

From the very start the program produced information material on asbestos, among others "The asbestos book". The program gave various courses on asbestos to the personnel in the municipality, targeted towards personnel groups assumed to be most at risk for exposure.

The context for the program unfortunately changed in 1995. New political philosophy on how to run things better by having "all responsibility for everything

decentralised as much as possible” was implemented. Thus the local administrator of a municipal building suddenly found himself/herself responsible for the removal of asbestos jobs in the building, but since no money followed this responsibility from the City Council, much of the asbestos removal jobs came to a halt because of local lack of money for removal costs. The Central Group of the program still got 1 mill Norwegian kroner to carry on with identification of asbestos-containing materials in the buildings and for keeping up the knowledge which had been accumulated. The Central Group also could work as consultants on asbestos problems for the local administrators of the buildings, but there were no central money for removal any more.

However, as the new political paradigm of de-centralised administration and total economic responsibility carried on, the 1 million for asbestos identification was also cancelled in 1999, leaving the two left members of the Central Group to act purely as consultants on asbestos questions. By 2006 they were actually moved to new jobs, and “asbestos in place” in the municipal buildings of Oslo was again forgotten. The physical status of the asbestos containing materials in the buildings will naturally deteriorate over time, increasing the risk for exposure to asbestos fibers.

The ideal Taskforce for identifying and removal of asbestos in buildings.

1. All buildings in the municipality should be covered, public buildings, private commercial buildings and private homes. They all might have asbestos problems and they all need help to master these problems.
2. Things take time-the program must have a long time perspective.
3. A smaller group with proficient members on engineering, building material knowledge and ventilation knowledge is needed for good enough inspections. It is better that these proficient people take longer time to survey an area, than to have a larger group of ordinary inspectors do a quick semi-survey of the area leaving a lot of inspections to be redone.
4. The smaller inspecting group must be connected to a Central Group organising data collection and storing of information for the area, also giving counseling and information to those who need it in the area.
5. The Central Group should have a professional Advisory Group knit to it.
6. There must be a central register for drawings of buildings where “asbestos left in place” (for the time being) can be marked. Thus any work on a building can have easy access to the identification of the asbestos danger spots in the building.

2-3. The growth of legislation. Nearly always lagging behind knowledge

The Labour Inspection's attitude and handling of the asbestos problem seems to have been somewhat slow more reactive than proactive. Going back to the 1930ies and 1940ies, the Norwegian Labour Inspection generally referred to the American Threshold Limit Values (TLV) from the American Conference of Governmental Industrial Hygienists, but without taking these values directly into Norwegian regulations. This includes the TLV for asbestos, which in 1970 was set at 5 asbestos fibers/cm³, aimed at protecting works against asbestosis only.

As soon as other Nordic countries set their national TLVs, Norway used this as a references too.

The first Norwegian regulation on asbestos came in 1973. It states that asbestos can cause both asbestosis and cancer, refers to the American TLV of 5 fibers/cm³ and the Swedish one of 2 fibers/cm³. The regulation states that if other materials than asbestos could be used for a task, this material and not asbestos should be used in the future. The regulation continues to give an ample amount of "good work-hygienic advices" which might function to some extent for the protection of asbestosis, but were inadequate for protection from cancer. The first amendments to the regulation on asbestos came in December 1976. It was nearly a total rewriting of the regulation with much sharper regulations. The use of blue asbestos was prohibited, the decision on use of other material than asbestos if possible was sharpened and asbestos should not longer be used for many isolation purposes. There came a decision that measurements of the asbestos concentration in the air should systematically be carried out. Norwegian TLV for asbestos in the air was, however, removed from the asbestos regulation and instead included in the advices on Normative Levels of Exposures (TLV). The levels for asbestos in the working air came slowly down to the present value of 0.1 fiber/cm³ from 1989 (table 1).

Table 1. Norwegian Administrative Norms (not legal regulations) on asbestos

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|------|---|
| 1978 | Lowest possible under 2 fibers/cm ³ |
| 1981 | Lowest possible under: Amosite and Tremolite 0.5 fiber/cm ³ -Crocidolite 0.2 fiber/cm ³ -other forms of asbestos 2 fibers/cm ³ |
| 1984 | Lowest possible under: Amosite and Tremolite 0.5 fiber/cm ³ -Crocidolite 0.2 fiber/cm ³ -crysotil other forms of asbestos 1 fiber/cm ³ |
| 1989 | Lowest possible under: All forms of asbestos 0.1 fiber/cm ³ |

Counting is done with phase contrast microscopy

In fact the mid 1970ies was a great awakening period for the Norwegian society in general concerning work-place hazards and work-environment questions. That all culminated in 1977 with our first Working Environment Act which has been the foundation for work-environment improvements for employers, employees and authorities (like the Labour Inspection) ever since.

The asbestos recommendation was again amended in 1984. This can be said to be long overdue as it already in 1976 could be suspected that asbestos should be banned from use altogether. The Central Labour Union forwarded this proposal to the Labour Inspection, but the Labour Inspection found itself in a strange position as the law regulating products in Norway, which had to be the basis for a regulation including a ban on asbestos containing products, was under the jurisdiction of the Ministry of Environment and not under the Ministry of Labour. Thus the law was not directly accessible to the Labour Inspection which is subordinate to the Ministry of Labour. In fact it took some years before The Ministry of Environment “transferred” access to the necessary parts of the law to the Ministry of Labour enabling the Labour Inspection to put forward the 1984 amendment. A general ban against the use of asbestos, not only for blue asbestos, on the import, production and trade of all asbestos and asbestos containing materials was introduced. Asbestos demolition work should only be done with permission from the Labour Inspection, given that the education of the workers in asbestos demolition was satisfying and that satisfying protective measures were used. Further amendments followed in 1995, 2002 and the latest, to bring the Norwegian regulation in accordance with the European Union Directive on Asbestos, came in 2005.

2-4. The legal health controls of asbestos workers

Both previous regulations on asbestos and the present (the EU compatible) contain demands for health controls of the asbestos workers. The aim is: 1) to exempt workers “unfit” for asbestos work like workers with pulmonary-, heart- or other relevant diseases. 2) to follow up the present potentially asbestos exposed workers in the asbestos demolition companies. The employer is responsible for organising, and pays for, these health controls, but only as long as the worker is employed in the company. Thus when a worker leaves the company or goes into retirement he/she is on his/her own concerning asbestos health controls. From a medical point of view, this is where the regulation fails as the demand for health controls and follow up does not at all take the latency period for asbestos diseases into account. In this respect the Norwegian (and EU) regulation is inadequate.

The regulation says that the employer should keep a record of the asbestos workers in the company, but there has been no general check on whether they do this adequately or not so that these registers hence can be used to create cohorts of asbestos workers if so needed. In practice, with the exemption of some cohorts, the previous and present asbestos workers in Norway have “diffused” out into other professions in the general population. There they may come down with asbestos diseases which, with the exception of mesothelioma, have a fair chance to go unrecognized as being caused by asbestos.

Concerning the content of health controls, except for a few distinct demands in the regulation, the “Norwegian way” is to put a demand on the physician's competence in occupational medicine and then give freedom to the physician to do what seems medically sensible within “good occupational medical practice”, contrary to making a large official document stating “if that do this” which is to be followed by the physicians. We have found this sensible against “over-medicalisation” of the health controls. Do just what is needed, not more.

2-5. The registered health consequences from asbestos

Norway has 3 systems where asbestos diseases can be picked up.

1. The employers'/employees' duty to notify the Social Security of any occupational accident and occupational disease to secure the compensation rights for the employee. This works to some extent acceptable for occupational accidents which are easy to detect. It works much more poorly for occupational diseases which quite often/mostly are not recognized as such even by the diseased employee and his/her physician. If the disease is recognized as occupational, the employee must inform the employer of this before the employer can make a notification to the Social Security. Thus the under-notification of occupational diseases to the Social Security is substantial.
2. Every Norwegian physician is obliged under the Work Environment Act to notify the Labour Inspection of all work-related disorders he/she discovers in patients. As Norwegian physicians are not particularly trained in laws, many physicians do not know of this obligation to notify. In addition comes that many Norwegian physicians are not trained properly in occupational medicine. Thus they do not realize that a patient's disease might be an occupational disease. Thus the under-notification of work-related disorders/occupational diseases to the Labour Inspection is substantial.

3. Concerning occupation cancers, Norway has one of the world's best Cancer Registries. We have knowledge of all diagnosed solitary tumors back into the 1950ies. The register is essential for all studies of occupational cancer in Norway. The cooperation between the Registry and occupational health researchers has been excellent. The data of the Cancer Register is truly a golden standard.

In 1997 we had a study comparing the notifications of mesotheliomas to the Social Security, the Labour Inspection and the Cancer Registry for the years 1970 to 1993 (6). In the Cancer Registry there were 662 men, while the Social Security had 163 (24.6 %) and the Labour Inspection 201 (30.4 %). For women there were 104 in the Cancer Registry, none in Social Security, and three in the Labour Inspection. Interesting, there was not too much overlap between those notified to the Social Security and to the Labour Inspection. With the knowledge that at least 80 % of mesotheliomas in men are counted as caused by asbestos, it is sobering to recognize that around a 60 % of the mesothelioma victims died without their legally granted compensation. We have an obvious potential for improvement (see later).

The last overview of age-adjusted (to the world standard for populations) mesotheliomas by the Cancer Registry showed that we have had an increasing number from around 1955 till today when we see about 16 cases/1 000 000 in men yearly. The curve is not yet flattening off which should have been expected if the rule "mesothelioma cases peak 30 years after maximum import/use of asbestos", holds. We had maximum import in 1972 which is 38 years back. So far the possibility that we might see a "coming" of mesothelioma cases from "asbestos in place" exposure, the only exposure we have had since 1984/1985, has not been looked into and can not be ruled out.

The Cancer Registry also confirms that it generally is employees from the building trade that come down with mesothelioma. This is worrying. Plumbers are twice as high in mesotheliomas than other professions among builders.

The notifications to the Labour Inspection also confirm the picture of increased mesothelioma risk in the building trade, but in addition the Inspection registers a large variation of different occupations for the mesothelioma cases. Most likely a reflection of the "diffusing out" of previous asbestos exposed employees into the general working population and into new occupations.

3. Compensation for occupational diseases

3-1. Social Security (Labour and Welfare Administration)

Many occupational diseases (musculoskeletal and psychological/psychiatric disorders are legally exempted) are compensated for in Norway. Covering: 1) all expenses for treatment. 2) if the disease results in medical disability of > 15 %, there is an additional compensation for “daily pains and problems” lasting for as long as the worker lives. This compensation is usually paid in monthly portions, but the diseased worker has the possibility to take out all the expected compensation in one sum. (Calculus: the monthly compensation \times 12 \times the years to expected normal lifetime calculated from the age of the patient when the diagnosis was established). This possibility is crucial for the asbestos cancer patient as lung cancer and mesothelioma patients generally only live but for around a year after diagnosis. With this “one-time payment” possibility the patient and its family can obtain their rightful compensation.

The patient, or his/her legal helper, must him/herself forward the claim to the Social Security. The civil servants of the Social Security are generally proficient to help the patient to forward a claim.

To be accepted the claim must fulfill:

1. The diagnose of the disease must be characteristic and there must be an established link between the disease and the claimed exposure factor.
2. The patient must in time and concentration have been exposed so that it is plausible to see a link between the exposure and the disease.
3. The disease must have established itself within a plausible time after exposure.
4. There must not be other exposures or diseases that are more likely as an explanation for the actual disease than the occupational exposure.

Decisions by the Social Security can be appealed to the Court of Social Security.

3-2. Law of Occupational Injury Insurance:

The Norwegian Eternit Factory Court Case triggered the work to secure all workers better compensation for occupational accidents and diseases. The Central Labour Union was naturally very active in this. It ended in the 1990 law of

Occupational Injury Insurance. This is an insurance which every enterprise in Norway is legally obliged to sign with an Insurance Company to compensate diseased workers in addition to the compensation the worker can receive from the Social Security. Insurance Companies who sell this insurance are legally obliged to establish and join an “interest group” to set up a fond to secure compensations also to employees whose employer has (by some reason or other) not taken the insurance or gone out of business. The Insurance Companies have the right to re-claim expenses against employers who do not follow the rules and, in cases, against third persons.

It is the diseased worker, or his/her legal helper, who (within 3 years) must forward a claim to the Insurance Company of the employee's last employer. The rules of acceptance are somewhat similar to the rules of the Social Security, but slightly more in favor of the claim of the employee. Among other musculoskeletal and psychological/psychiatric disorders might be accepted. It is also the Insurance Company that must “prove” that the claimed disease is not an occupational one. There is left some of the compensation for “daily pains and problems” even after the employee is dead. Contrary to the helping civil servant in the Social Security, the employee of the Insurance Company must be seen as more having the role of a controller basically protecting the insurance company's money. Thus in conflict on a claim to the Insurance Company, the employee might need legal assistance. Conflict on a claim can be taken to the general Court system.

3-3. Identification of patients who should forward claims for compensation is a crucial part of the whole compensation system

Empirically we know 1) that workers with occupational diseases seldom recognise themselves as having an occupational disease, 2) that occupational diseases are grossly under diagnosed in the ordinary health care system and that 3) the diseased workers rarely do have knowledge on their special compensation rights. Furthermore, in the cases of asbestos cancers the workers 4) fairly quickly get so ill that the focus naturally will be on passing each day as comfortable as possible. They do not have any strength left to work to obtain their compensations. 5) Thus, without help, workers with asbestosis and especially with asbestos cancers previously mostly went unrecognised and died without having obtained compensations.

Solution: To ameliorate this situation, two types of organisations have been established in Norway.

1. One aims at serving local identified populations of asbestos exposed workers
2. The other covers all cancers that might be occupational nation-wide. This scheme, to some extent, covers the previous un-identified asbestos exposed workers who have "diffused" into other professions in the general population. It also will pick up cases among the general population who unwittingly have been exposed to asbestos.

3-3-1. Set-up for a local population

The Norwegian Eternit Factory (see previously) in the Norcem Cement group (now part of Heidelberger Cement Group) stated production of asbestos-cement in 1943 and closed in 1981. About 700 men and 100 women have been registered as being employed for more than 3 months at the factory. As the plant closed, it was decided by Norcem and the Labour Union that the Occupational Health Service should be transformed to a proactive Medical Helping Service for the asbestos exposed workers. Norcem provides the financing. To gain satisfactory proactive capability towards the old asbestos exposed workers the new Helping Service was strengthened with a local representative of the Labour Union in addition to the occupational medical personnel. This combination of personnel has proved crucial for the success of the Helping Service.

What the service should provide and how it should operate, were not decided by medical personnel, but by representatives for the Labour Union and Norcem in negotiation. Getting assistance from the Helping Service is voluntary. Every 4th year all remaining workers get an invitation to have a chest X-ray. If anything is detected on the X-ray which might be caused by asbestos, the worker gets an invitation to join a yearly check-up scheme at the Helping Service. The most important activity for the Helping Service is, however, to regularly remind all the workers that they can contact the Helping Service if needed. The Helping Service actively follows the workers and assists them to forward their claims if they should develop asbestos cancer. (At present mesotheliomas, lung-, larynx-, kidney- and gastrointestinal cancers can be recognised as asbestos occupational cancers in Norway). This program has worked acceptably well for the workers still living in the vicinity of the former factory (about half of the population) where also the representative for the Labour Union lives. However, for the other half of the workers who has moved "back home" to various parts in Norway, the Helping Service has not succeeded to the same extent.

3-3-2. Set-up for a nation

The Norwegian Cancer Registry is in position to inform cancer patients that they might have an occupational cancer. In 1998 the regulations for the Cancer Registry was amended enabling it to start such a proactive services. Since the autumn of 1998 all patients with lung-, mesothelioma-, nose/sinuses-, urinary bladder-, kidney-, throat cancers and leukaemias get a notification from the Cancer Registry through the Social Security system. The Social Security system is the Norwegian authority that has the contact with all patients in Norway concerning re-imbursements for medical expenditures and pensions. Thus the Social Security system, through its local branches in the municipalities, is in position to contact all cancer patients. The message the cancer patients receives is that they might have an occupational cancer which carries legal rights for compensation for treatment and compensation for the disease itself. The patients are asked to check this possibility of work-relatedness of their cancers with their treating physicians and their local Social Security service. This scheme proved to be immediately successful with a 70 % increase in the number of compensation claims for occupational cancer to the Social Security within the first year. However, the weakness in this information service was also immediately documented. For the more aggressive cancers, as lung cancer and mesothelioma, around 13 % and 17 % respectively of the patients had died before the Cancer Registry could notify them. No studies have so far been conducted to find out how many patients with real work-related cancers do not check out this possibility even when notified. Neither do we know how many patients with real work-related cancers who do claim to the Social Security system, but are (for various reasons) rejected. Last, we do not know how many patients who do claim and are accepted as occupational cancers by the Social Security system have died before they have had their compensations paid to them.

This Norwegian national system for identifying and helping patients with work-related cancer is a good one, but there might be great gains if the system was studied with the aim of improving it.

4. Advice from the Norwegian experience

1. When the use of asbestos has been banned, localise all “asbestos in place” so one knows when one handles asbestos-containing materials in the future.

2. Register as many asbestos exposed workers as possible and have them actively followed up in sensible surveillance schemes (running contact and action when necessary).
3. Establish national action schemes for people coming down with possible asbestos-related cancers. (Cancer registry based or hospital based)
4. Establish sensible compensation schemes for asbestos disease victims.

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